

ABSTRACT OF THE INVENTION

The present invention relates to an optical amplifier that can operate with low electric power consumption and can sufficiently compensate for the variation of gain spectrum induced by temperature fluctuation. The optical amplifier comprises an amplification optical fiber, a pumping light supplier, and a gain equalizer. The light inputted to the optical amplifier is amplified in the amplification optical fiber, and thereafter the amplified light passes through the gain equalizer. By passing the amplified light through the gain equalizer, the gain spectrum of the amplification optical fiber is equalized and the temperature dependence of the gain spectrum is compensated. At this time, the wavelength of the pumping light supplied from the pumping light supplier to the amplification optical fiber is set such that the gain variation spectrum of the amplification optical fiber depending on temperature becomes smooth. Thus, the amplification optical fiber is supplied with the pumping light whose wavelength is suitable for compensating for the temperature dependence of the gain spectrum.